

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1(Currently Amended). A liquid crystal display device comprising:

an active matrix substrate comprising an active matrix circuit in which a plurality of pixel TFTs are disposed in a matrix, and a source driver and a gate driver that drive the active matrix circuit; and

an opposing substrate comprising an opposing electrode,

wherein the liquid crystal display device is characterized as:

performing display by optically compensated bend mode; and

conducting voltage gray scale ~~method~~ and time ratio gray scale at the same time by using n bit out of m bit digital data as information for voltage gray scale, and (m-n) bit as information for time ratio gray scale, wherein m and n are positive numbers equal to or greater than 2 and satisfy $m > n$.

2 (Canceled).

3(Currently Amended). A liquid crystal display device comprising:

an active matrix substrate comprising an active matrix circuit in which a plurality of pixel TFTs are disposed in a matrix, and a source driver and a gate driver that drive the active matrix circuit;

an opposing substrate comprising an opposing electrode; and

a circuit which converts m bit digital video data ~~inputted from the external~~ into n bit digital video data and provides the n bit digital video data to the source driver, wherein m and n are positive

numbers equal to or greater than 2 and satisfy $m > n$,

wherein the liquid crystal display device is characterized as:

forming an image for one frame ~~image~~ comprising 2^{m-n} subframes by performing voltage gray scale ~~method~~ and time ratio gray scale that uses $(m-n)$ bit at the same time, and;

applying voltage which makes an orientation of liquid crystal to a bend orientation on starting display of the 2^{m-n} subframes.

4 (Canceled).

5 (Currently Amended). A liquid crystal display device comprising:

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an active matrix substrate comprising an active matrix circuit in which a plurality of pixel TFTs are disposed in a matrix, and a source driver and a gate driver that drive the active matrix circuit; and

a circuit which converts m bit digital video data ~~inputted from the external~~ into n bit digital video data and provides the n bit digital video data to the source driver, wherein m and n are positive numbers equal to or greater than 2 and satisfy $m > n$,

wherein the liquid crystal display device is characterized as:

forming an image for one frame ~~image~~ comprising 2^{m-n} subframes by performing voltage gray scale method and time ratio gray scale that uses $(m-n)$ bit at the same time; and:

applying voltage which makes an orientation of liquid crystal to a bend orientation on starting display of the frame which comprises 2^{m-n} subframes.

6 (Canceled).

7(Original). A liquid crystal display device according to claim 1, wherein the positive number m is 10 and the positive number n is 2.

8 (Canceled).

9 (Original). A liquid crystal display device according to claim 3, wherein the positive number m is 10 and the positive number n is 2.

10 (Canceled).

11 (Original). A liquid crystal display device according to claim 5, wherein the positive number m is 10 and the positive number n is 2.

12 (Canceled).

13 (Original). A liquid crystal display device according to claim 1, wherein the positive number m is 12 and the positive number n is 4.

14 (Canceled).

15 (Original). A liquid crystal display device according to claim 3, wherein the positive number m is 12 and the positive number n is 4.

16 (Canceled).

17 (Original). A liquid crystal display device according to claim 5, wherein the positive number m is 12 and the positive number n is 4.

18 (Canceled).

19 (Original). A rear projector which comprises 3 liquid crystal display devices according to claim 1.

20 (Canceled).

21 (Original). A rear projector which comprises 3 liquid crystal display devices according to claim 3.

22 (Canceled).

23 (Original). A rear projector which comprises 3 liquid crystal display devices according to claim 5.

24 (Canceled).

25 (Original). A front projector which comprises 3 liquid crystal display devices according to

claim 1.

26 (Canceled).

27 (Original). A front projector which comprises 3 liquid crystal display devices according to claim 3.

28 (Canceled).

29 (Original). A front projector which comprises 3 liquid crystal display devices according to claim 5.

30 (Canceled).

31. (Withdrawn) A single plate type projector which comprises a liquid crystal display device according to claim 1.

32. (Withdrawn) A single plate type projector which comprises a liquid crystal display device according to claim 2.

33. (Withdrawn) A single plate type projector which comprises a liquid crystal display device according to claim 3.

34. (Withdrawn) A single plate type projector which comprises a liquid crystal display device according to claim 4.

35. (Withdrawn) A single plate type projector which comprises a liquid crystal display device according to claim 5.

36. (Withdrawn) A single plate type projector which comprises a liquid crystal display device according to claim 6.

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37. (Withdrawn) A goggle type display which comprises 2 liquid crystal display devices according to claim 1.

38. (Withdrawn) A goggle type display which comprises 2 liquid crystal display devices according to claim 2.

39. (Withdrawn) A goggle type display which comprises 2 liquid crystal display devices according to claim 3.

40. (Withdrawn) A goggle type display which comprises 2 liquid crystal display devices according to claim 4.

41. (Withdrawn) A goggle type display which comprises 2 liquid crystal display devices according to claim 5.

42. (Withdrawn) A goggle type display which comprises 2 liquid crystal display devices according to claim 6.

43. (Withdrawn) A portable information terminal which comprises a liquid crystal display device according to claim 1.

44. (Withdrawn) A portable information terminal which comprises a liquid crystal display device according to claim 2.

45. (Withdrawn) A portable information terminal which comprises a liquid crystal display device according to claim 3.

46. (Withdrawn) A portable information terminal which comprises a liquid crystal display device according to claim 4.

47. (Withdrawn) A portable information terminal which comprises a liquid crystal display device according to claim 5.

48. (Withdrawn) A portable information terminal which comprises a liquid crystal display device according to claim 6.

49 (Original). A notebook type personal computer which comprises a liquid crystal display device according to claim 1.

50. (Canceled)

51(Original). A notebook type personal computer which comprises a liquid crystal display device according to claim 3.

52 (Canceled)

53 (Original). A notebook type personal computer which comprises a liquid crystal display device according to claim 5.

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54. (Canceled)

55(Currently Amended). A liquid crystal display device comprising:

- a first substrate;
- a plurality of pixel thin film transistors disposed in a matrix form over the substrate;
- a source driver operationally connected to said plurality of pixel thin film transistors;
- an opposing substrate provided with an opposing electrode; and
- a liquid crystal layer interposed between the first substrate and the opposing electrode, said liquid crystal layer having a p cell structure; and
- a digital video data time ratio gray scale processing circuit, operationally connected to said

source driver,

wherein a m bit digital video data inputted to the digital video data time ratio gray scale processing circuit is converted into an n bit digital video data for voltage gray scale while (m - n) bit data of the m bit digital video data is used for time ratio gray scale.

56 (Previously presented). The liquid crystal display device according to claim 55 wherein said liquid crystal display device is operated in an OCB mode.

57(Currently Amended). A method of driving a liquid crystal display device comprising:
an active matrix substrate comprising an active matrix circuit in which a plurality of pixel TFTs are disposed in a matrix, and a source driver and a gate driver that drive the active matrix circuit; and

an opposing substrate comprising an opposing electrode;

wherein the method of driving the liquid crystal display device is characterized as:

performing display by optically compensated bend mode, and

conducting voltage gray scale ~~method~~ and time ratio gray scale at the same time by using n bit out of m bit digital data as information for voltage gray scale, and (m-n) bit as information for time ratio gray scale, wherein m and n are positive numbers equal to or greater than 2 and satisfy $m > n$.

58(Currently Amended). A method of driving a liquid crystal display device comprising:
an active matrix substrate comprising an active matrix circuit in which a plurality of pixel TFTs are disposed in a matrix, and a source driver and a gate driver that drive the active matrix circuit;

an opposing substrate comprising an opposing electrode; and

a circuit which converts m bit digital video data inputted from the external into n bit digital video data and provides the n bit digital video data to the source driver, wherein m and n are positive numbers equal to or greater than 2 and satisfy $m > n$,

wherein the method of the liquid crystal display device is characterized as:

forming an image for one frame ~~image~~ comprising 2^{m-n} subframes by performing voltage gray scale ~~method~~ and time ratio gray scale that uses (m-n) bit at the same time, and;

applying voltage which makes an orientation of liquid crystal to a bend orientation on starting display of the 2^{m-n} subframes.

59 (Previously presented). The liquid crystal display device according to claim 1 wherein said active matrix substrate further comprises an opposing electrode driving circuit.

60 (Previously presented). The liquid crystal display device according to claim 3 wherein said active matrix substrate further comprises an opposing electrode driving circuit.

61 (Previously presented). The liquid crystal display device according to claim 5 wherein said active matrix substrate further comprises an opposing electrode driving circuit.

62 (Previously presented). The liquid crystal display device according to claim 55 wherein an opposing electrode driving circuit is provided at the substrate.

63 (Previously presented). The method of driving the liquid crystal display device according to

claim 57 wherein said active matrix substrate further comprises an opposing electrode driving circuit.

64(Previously presented). The method of driving the liquid crystal display device according to claim 58 wherein said active matrix substrate further comprises an opposing electrode driving circuit.

65(Previously presented). An electronic device having the liquid crystal display device according to claim 1, wherein said electronic device is selected from the group consisting of a mobile telephone, a video camera, a mobile computer, a portable book, a player using a recording medium, a digital camera, and a display.

66(Previously presented). An electronic device having the liquid crystal display device according to claim 3, wherein said electronic device is selected from the group consisting of a mobile telephone, a video camera, a mobile computer, a portable book, a player using a recording medium, a digital camera, and a display.

67(Previously presented). An electronic device having the liquid crystal display device according to claim 5, wherein said electronic device is selected from the group consisting of a mobile telephone, a video camera, a mobile computer, a portable book, a player using a recording medium, a digital camera, and a display.

68(Previously presented). An electronic device having the liquid crystal display device

according to claim 55, wherein said electronic device is selected from the group consisting of a mobile telephone, a video camera, a mobile computer, a portable book, a player using a recording medium, a digital camera, and a display.

69 (New). A liquid crystal display device according to claim 1, wherein a display gray scale level is obtained by totaling gray scale voltage levels in sub-frame terms of one frame and then averaging totaled gray scale voltage levels by said time ratio gray scale.

70 (New). A liquid crystal display device according to claim 3, wherein a display gray scale level is obtained by totaling gray scale voltage levels in sub-frame terms of one frame and then averaging totaled gray scale voltage levels by said time ratio gray scale.

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71 (New). A liquid crystal display device according to claim 5, wherein a display gray scale level is obtained by totaling gray scale voltage levels in sub-frame terms of one frame and then averaging totaled gray scale voltage levels by said time ratio gray scale.

72 (New). A liquid crystal display device according to claim 55, a display gray scale level is obtained by totaling gray scale voltage levels in sub-frame terms of one frame and then averaging totaled gray scale voltage levels by said time ratio gray scale.

73 (New). A liquid crystal display device according to claim 57, a display gray scale level is obtained by totaling gray scale voltage levels in sub-frame terms of one frame and then averaging totaled gray scale voltage levels by said time ratio gray scale.

74(New). A liquid crystal display device according to claim 58, a display gray scale level is

obtained by totaling gray scale voltage levels in sub-frame terms of one frame and then averaging

totalled gray scale voltage levels by said time ratio gray scale.
